

Navy Bureau of Medicine and Surgery (BUMED)

Dental Amalgam Waste Fact Sheet

What do you do with your Dental Amalgam?

About Waste Dental Amalgam: Dental Amalgam contains mercury (Hg) and other metals, and as a result, waste dental amalgam often exhibits the characteristic of a Hazardous Waste (HW) under the Resource Conservation and Recovery Act (RCRA) regulations. In addition, efforts to collect dental amalgam using capturing devices or separators constitutes "pre-treatment" of your sanitary wastewater system per the Clean Water Act (CWA) regulations. As a result, both RCRA and CWA regulations must be considered when collecting dental amalgam. This fact sheet summarizes some key aspects to consider in the management of waste dental amalgam, and also provides references documenting existing guidance.



WHATS NEW?

MERCURY ABATEMENT EQUIPMENT **(Amalgam Separators):**

NIDBR, in collaboration with Navy and Marine Corps Public Health Center (NMCPHC) and NAVFAC LANT, are installing amalgam separators in all Navy dental treatment facilities in support of BUMED Instruction 6260.30A. Several types of mercury abatement equipment are being installed. These include:

- Chairside filtration systems (ISO 11143-certified), protects plumbing lines from contamination from Hg containing amalgam debris.
- Larger centralized "two phase" amalgam separation systems (ISO 11143 certified) where there is a need to meet a regulator-defined mercury discharge limit. Some "two phase" amalgam separation systems can remove both particulate and dissolved mercury species.
- Once any new amalgam filters/separators are installed, the MTFs Environmental POC must coordinate with the Installation Environmental Dept. to determine inspection and maintenance responsibilities and frequency. Inspection documentation may be required by the facility wastewater discharge permit.

Contact NIDBR for clarification and/or questions

Wastewater Information - If your clinic discharges to the sanitary sewer and then to a Publicly-Owned Treatment Works (POTW) you most likely have an industrial wastewater discharge permit specifying what wastewater contaminants may be discharged to the POTW. Dental amalgam filters and/or separators installed on your dental chairs may be deemed "pre-treatment" devices and need to be added to the discharge permit. If your facility is a **tenant**, the Environmental POC responsible for the clinic must coordinate with the host Installation Environmental POC to ensure requirements are met **prior** to adding new industrial flows or making changes to the characteristics of existing industrial flows identified in the permit. **At Stand-Alone facilities**, other clinics (dental chairs) may discharge to a domestic wastewater treatment plant (WWTP) under the host BUMED Hospital's permit. The facility Environmental POC should check the notification and modification requirements of the issued WWTP permit.

Typical Waste Amalgam Sources:

- **amalgam scrap (contact and non-contact)**
- **used amalgam capsules**
- **extracted teeth with amalgam fillings**
- **used chairside traps**
- **used chairside filters (from NIDBR/NAVFAC chairside amalgam separation systems)**

Environmental POCs should:

- Ensure conformance with RCRA regulations or Final Governing Standards overseas. (classification, storage, disposal, recycling)
- Communicate and coordinate the waste management requirements with your Dental Clinics and local regulators.
- Examine recycling options
- Ensure that all Amalgam Handlers are trained and current in the following:
 - ❖ **OSHA HAZWOPER (29 CFR 1910.120)**
 - ❖ **RCRA HW (40 CFR 260-279)**
 - ❖ **DOT (49 CFR 172.704)** - For any employee/technician involved in packaging, labeling, shipping of HW
 - ❖ **OSHA HAZCOM (29 CFR 1910.1200)**
- **Implement sound Best Management Practices**

Hazardous Waste (HW) Information - Management of Hazardous Waste (HW), including amalgam from **typical waste amalgam sources**, requires careful attention to RCRA regulations (or Final Governing Standards overseas) to ensure the proper waste determination, storage, accumulation, transportation, disposal / recycling of the waste, and recordkeeping. The facility Environmental POC responsible for the clinic / chairs on host Navy installations must coordinate with appropriate contact at the host Navy installation and dental facility operators to ensure that all requirements are being properly addressed. The MTF Environmental Manager/POCs responsible for clinics on BUMED stand-alone installations should coordinate with dental facility operators and local HW regulators to ensure proper management of this waste stream. **Recycling may reduce the regulatory requirements applicable to the amalgam being recycled.**

Definitions:

- **Amalgam Capture Devices**- chairside traps or vacuum pump filters that collect amalgam particles.
- **Amalgam Separators** - capture devices used to prevent the release of amalgam wastes into wastewater systems (sewers). Employ multiple pre-treatment methods. Some are capable of removing both particulate and dissolved mercury in dental-unit wastewater.
- **Amalgam sludge** - liquid and solid mixture collected from amalgam capture devices and ancillary equipment.
- **Chairside traps** - 700 to 1000 μm pore size plastic screens integrated into most dental chairs.
- **Contact amalgam** - amalgam that has been in contact with the patient. Includes extracted teeth with amalgam restorations, collected carving scrap, chairside trap amalgam.
- **Dental Amalgam Waste Best Management Practices** are a series of amalgam waste handling and disposal practices. See BMP Block.
- **Empty (used) amalgam capsules** - the individually dosed containers left over after mixing pre-encapsulated dental amalgam.
- **ISO 11143** - laboratory test using a control, designed to evaluate the efficiency of amalgam separators (95% removal required for certification).
- **NIDBR Chairside filter systems** - ISO 11143 certified amalgam separators having reusable chambers and disposable polypropylene filter elements. Feature smaller pore size and are mounted inline with the vacuum system. Remove amalgam particulate before it reaches vacuum plumbing lines.
- **Non-contact amalgam** - excess amalgam mix left over that has not come in contact with the patient.
- **Vacuum pump filters** - metal screens on vacuum pumps found in some smaller dental clinics. These filters prevent debris damage to internal vacuum pump components. The filters may collect debris from the dental chair, and therefore may contain significant amounts of Hg-containing amalgam.

Best Management Procedures (BMP):

BMP's for managing, minimizing, and recycling waste amalgam according to regulatory requirements.

- **Stock** an assorted sized variety of pre-encapsulated amalgam to minimize excess waste amalgam.
- **Collect** used amalgam capsules, contact scrap, non-contact scrap amalgam, and extracted teeth containing amalgam for recycling or disposal as a hazardous waste.
- **Clean/replace** chairside traps and vacuum pump filters on a regular basis.
- **Don't** rinse devices including chairside traps or pump filters containing amalgam waste in sinks or discard down drains or toilets.
- **Never** discard used capsules or any scrap contact or non-contact wastes in biohazard containers, infectious waste containers (red bags) or in the regular trash containers. Incineration can release mercury vapor into the atmosphere.
- **Disinfection** - Contact amalgam scrap may require disinfection prior to disposal or recycling. Check with recycling vendors or your local DRMO regarding specific requirements. To disinfect amalgam waste, it is recommended to use a non-halogenated surface disinfectant. NIDBR used chairside amalgam traps and filters, scrap contact amalgam, and extracted teeth fillings can be disinfected with surface disinfectants such as CaviCide™ (<http://www.metrex.com>). CaviCide™ is a multi-purpose tuberculocidal broad spectrum disinfectant that can be applied to spent filter units and allowed to air dry.
- **Contact** your local environmental office to determine the requirement for disinfection or treatment of these wastes.
- **Recycling** of amalgam waste by licensed mercury reporting facilities is the preferable pathway to manage this waste stream. Where this is not possible, dental amalgam waste must be managed as a hazardous waste under RCRA.

References:

- 16 May 05 Navy Environmental Health Center (NEHC) Letter on "Best Management Practices for Amalgam Waste"
- 12 Oct 06 Navy Environmental Health Center (NEHC) Letter on "Recycling Waste Dental Amalgam"
- 24 Mar 05 BUMED Deputy Chief, Health Care Operations (M3H) Letter on the "Management of Dental Mercury Waste"
- 24 Mar 05 Defense Reutilization and Marketing Service (DRMS) Letter on "Revised Procedures for the Management of Dental Amalgam"

A BMP video produced by the Naval Institute Dental and Biomedical Research (NIDBR) and the American Dental Association (ADA) are available on the NMCPHC website link: http://www-nmcphe.med.navy.mil/ep/eq_docs.htm

Additional Helpful BMP Resources:

- BMP's for Amalgam Waste. ADA;
http://www.ada.org/prof/resources/topics/topics_amalgamwaste.pdf
- NIDBR/ADA Dental Amalgam Waste BMP's;
<http://www.dentalmercury.com>
- Dental Mercury Website available at:
<http://www.dentalmercury.com>
- BUMED Instruction 6260.30A.
<http://navymedicine.med.navy.mil/Files/Media/directives/6260.30A.pdf>
- DRMO and amalgam waste;
DRMO memo on the collection of amalgam waste; available at <http://www-nmcphe.med.navy.mil/downloads/ep/EQ/DRMO%20memo%20on%20amalgam%20recycling.pdf>
- MSDS for CaviCide™;
http://www.mvapmed.com/MSDS_Forms/Cavacide%20MX-1024%20&%20MX-1000.pdf